

T News Letter **TDARS**

G3ZME
G6ZME

TELFORD AND DISTRICT AMATEUR RADIO SOCIETY

www.TDARS.org.uk

FOUNDED 1969

www.TelfordHamfest.co.uk

Issue 279

July-Sept 2017

www.TDARS.org.uk

Programme

www.telfordhamfest.co.uk

July 19 Debrief night—Marconi IMD, 50 MHz Trophy and VHF NFD 2017

July 26 HamFest Volunteers round-up! Also Make a 2 metre Moxon night (G0UFE)

August 2 Committee Meeting & GX3ZME on the air

August 9 The Moxon on Test—LWV Field (behind the Huntsman). 7pm onwards

August 16 Telford HamFest & G-QRP Convention/Buildathon preparations night

August 19-20 w/e. Battle Re-enactment Event nr Whitchurch—GB1BRE (SY13 3AB)

August 23 3rd DF Hunt (2 metres, 144.600MHz). Starts 7:30pm.

August 30 HamFest & G-QRP Convention final preparations and updates

September 2-3 G-QRP Convention (Sat.) Telford HamFest (Sunday). Meet up 7:30am

September 6 Committee Meeting & GX3ZME on the air

September 13 HamFest Debrief and RSGB Historic Radio (Wireless) presentation

September 20 Richard G0VXG: 'Web Server in a Matchbox' and 'Beacon News'

September 27 Winter Projects Ideas and Discussion night

October 4 Committee Meeting & GX3ZME on the air

October 11 Surplus Equipment Sale

October 18, 25 T.B.A.

For Amateur Radio Exam Training—enquiries to Mike G3JKX (01952 299677)
For Morse Training and Morse Proficiency Tests Martyn G3UKV or Eric M0KZB.
For Equipment Loans & Returns contact Don M0TBQ.

Radio Amateur Exams- Latest: www.tdars.org.uk/html/training.html

VILLAGE HALL, MALTHOUSE BANK, LITTLE WENLOCK, TELFORD, SHROPSHIRE. TF6 5BG

Editorial

Last night was the second of three 2 metre DF hunts in Little Wenlock. What could possibly go wrong? Well, everything, actually. Having had problems in May (#1 DF hunt) with my offset oscillator DF kit, I made sure that I was fully aware of how to operate the little box of tricks, which has an oddball offset frequency of 3.58MHz. On the bench, working perfectly, so I could easily handle a 5 watt TX just a few yards away from my TYT H/H receiver, without overload. Made sure the required frequencies were in the right memory locations, and the coax lead wouldn't fall apart as it had last time. Arrived early enough for the first transmission by Martin 2E0TRO at 7:30pm. Comfortable S8-9 signal, no problem. Two peaks with the 3 ele 'tape measure' antenna, but decided to go towards the church as it seemed the stronger. John G3YDT joined me, and we DF'd each transmission thereafter, every 4 minutes, fairly confidently. Signal strengths varied widely, and seemed to be contradictory at times. Uumm... Clues from Martin? Yes—most unhelpful "I can see trees...." - oh yes, very informative — not. Signal really weak down the Buildwas lane, so headed eastwards as there was a "clue"-less about a pub in the distance, towards Coalmoor perhaps? Trekking to edge of village that direction—signal almost nil. Back to square one near LWVH start. Head for LW Village Field, where several teams were furking around in the undergrowth—not there, signal still quite weak. Right, another 'peak' to NW. . . . Nope not that direction either. . . legs beginning to ache, sweat beginning to run. Rumours that Peter M1FGN had found Martin—even though I had ignored his advice at an earlier location in the village. ("I'll eat my words if he's over there" - oh dear). One last, now rather desperate trek towards the churchyard. Check a couple of local drive-ways... nowt. Another rumour that Martin was sitting with a glass of wine in his back garden, but I knew that would have broken the Nr. 1 DF rule that the 'fox' must be in a public place, with public access. Return to the Huntsman for consolation, only to find most other teams had already arrived in jubilant mood, having traced Martin's hidden location which turned out to be down the only lane in the village which we hadn't explored. Needless to say, I received a barrage of unwanted advice and heckling from fellow DFers.

You lot — just wait until the third DF hunt in August (23rd) - then we'll see who finds Martin first. Science will prevail. . . .

MIV

TELFORD & DISTRICT AMATEUR RADIO SOCIETY

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Committee: Simon G0UFE; Brian G6UDX; Paul M0PLA; Graham G7LMF; Village Hall Committee Liaison officer Martin 2E0TRO. QSL Manager Paul M0PNN; Assist Curator: Mike G6DFD; Trophies/Certs: Martyn G3UKV.

From Mike G6DFD **Origin of RG as in RG-58 COAX CABLE**

RG means "Radio Guide" and was the original military specification for coax cable, starting in the 1930s. So what do all the numbers mean ? RG-6, RG-8, RG-58, RG-59, RG-62, RG-122, RG-213, RG-405 and on and on ?

The number is just a page in a book. RG-1 was the first page (and obviously wasn't a very successful cable design). RG-6, the sixth page, was wildly successful. Most CATV/broadband cable these days is RG-6.

Qtc: News & Information



TDARS MEETINGS EVERY WEDNESDAY AT LITTLE WENLOCK VILLAGE HALL UNLESS INDICATED OTHERWISE ON THE FRONT PAGE PROGRAMME. ROOM BOOKED FROM 7PM - 10PM.

If Junior Hamsters group meeting, please do not enter before 7:45pm MEETINGS USUALLY COMMENCE AT 8PM

Please note: A current membership card must be shown to borrow TDARS equipment. Please return borrowed equipment promptly .

TDARS Subs—late reminder—for 2017-18. Subs remain the same as last year—adults £30, 'non-earners' £24, full-time students £16, and free for under 16s. If you have not paid by now, your membership will have lapsed.

John Puddifoot's presentation '**Memoirs of a Cellular Field Engineer**' (April 19th) would probably still be going on now, if he hadn't been reminded of the time by Eric. His work took him to many places, both at home and abroad, between the years of 1985 and 2013. Equipment in the early days of mobile phoning could only handle 16 channels simultaneously, and following installation, needed at least a week for commissioning. Generous expense allowances and 4 star hotels overnight were the norm. The later generations of equipment featured remote controlling and massively extended call-handling capability. John moved to Portugal, South Korea, China and the USA at various times. In China he noticed that overnight flights were used American aircraft (reliable), but Russian flights (less reliable) were used during the day. John clearly enjoyed his lifestyle, and he had a bagful of anecdotes to share with us.



The **visit to Criggion** (May 10), hosted by Robert Pearce, was memorable, and members thoroughly enjoyed wandering about the old radio site by the River Severn. Nothing was too much bother for Robert as he explained the what, how, where and why of the site. He even offered a source of some excellent ex-military semi portable masts, much admired on site by members. A pint at the local hostelry rounded off the visit very satisfactorily.



John G0GTN from Shrewsbury club entertained us with his rather wacky presentation style about his 'One Valve Super Regen' receiver (May 17). A number of items were circulated to those members present. Thank you, John. (photo Pg. 8)

The first **B-B-Q of the season** was held in LWV Field on June 28. Thanks to Paul (M0PLA) and Jim (G8UGL) for their cookery, plus those who brought spare seats for us all to sit on. It was a wet night, but inviting the Hamsters and their parents was a good move, and the youngsters seemed determined to get as wet as possible on the nearby village play equipment. At least we could take shelter in the covered barn area at the edge of the area.



Pictures circulated by John Puddifoot at his presentation on April 19th.

**Left: typical tx/rx with cavities.
Right: early 'mobile' handsets—types 4500 and 8000.**



4500



8000

There have now been two **2 metre DF hunts**, with Martin 2E0TRO as the 'fox'. Quite a good turnout for both events, numbering 8 or 9 teams for the July leg. Martin says he will make the final one in August really easy, but after the so-called 'clues' for the first two sessions, I would treat that with a large pinch of salt. (see Editorial page 2).

With the **Telford HamFest only about 6 weeks away**, Martin 2E0TRO will be looking for volunteers for the various duties to be covered. There is even more help required this year with the mini G-QRP Convention and Buildathon the previous evening at the Holiday Inn Ironbridge-Telford from 7—10:30pm. Please make every effort to assist—special HamFest preparation meetings will take place on July 26, August 16 and 30th. at the club However, if you are unable to attend these meetings, please let Martin know when you are available to help.

A **new power supply** (PSU) has been purchased to replace the Alinco unit which failed quite recently. A couple of members looked inside the Alinco, but there was no obvious component failure or open-circuit. As a switched-mode device, failures are usually difficult to trace, and often result in multi component 'domino' breakdowns.

The TDARS **subscription to the ARRL** (USA National Society) has been dis-continued. Few members were taking up the offer to borrow their monthly magazine ("QST") when it was available at club meetings, and the price had increased sharply. The decision was taken by the committee.

The club, via Graham G7LMF, has been asked to set up an **HF station for Scouts** at an event at Stanley Hall, Astley Abbots, on Saturday 30th September . Further information will follow as it becomes available. Graham has also been busy preparing final copies of **leaflets** for public events and for parents of younger potential radio amateurs. These will be printed shortly for wider circulation wherever appropriate, such as at our HamFest .

VHF NFD was quite well supported, with about 15 members operating and logging on the Long Mynd site at the start of July, plus visitors. All equipment, rotators and antennas worked well, with no breakdowns. The **claimed** entry scores (together with final placements in the 'claimed scores' table) are as follows: :-

6 m. 81 QSOs, 17561 pts. Best DX 9H1TX in JM75FU (2303 Km). Latest claimed position:5th (R)
2m. 266 QSOs, 59873 pts. Best DX DA0FF in JO40XL (917 Km). Latest claimed position 2nd (R)
70cm. 75 QSOs, 12949 pts. Best DX DL0LN in JO31QX (700 Km). Latest claimed position 2nd (L)
23cm. 40 QSOs, 7573 pts. Best DX DF0MU in JO32PC (693 Km). Latest claimed position 2nd (L)



Khyam: Set-up problems:
M0HMO, G6UDX
(and many others !!)



Nightfall at G3ZME/P
2m 70cm 6m 23cm



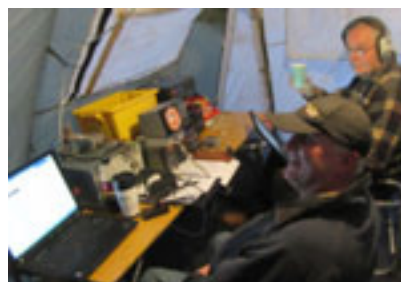
Wild horses wouldn't have stopped us...



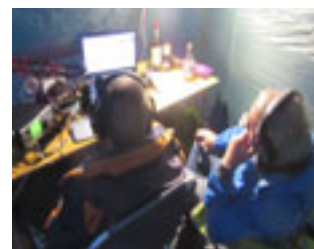
6m. Two patient ops:
Paul and Heather



2m. Non-stop, almost
Paul, Graham and Simon



23cm. Remaining awake, slow going
Mike and Jim

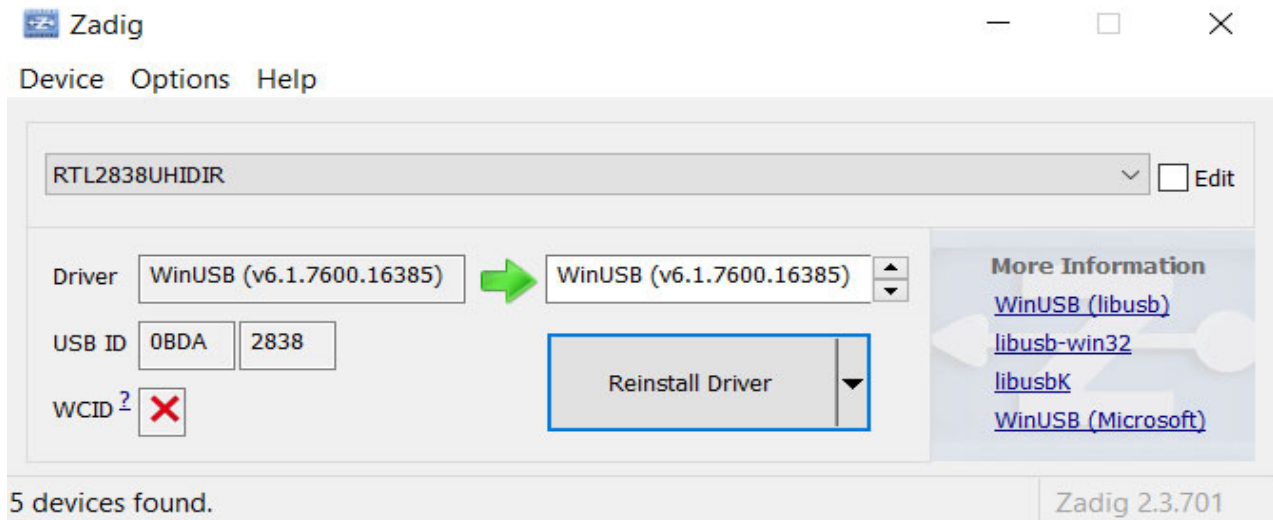


70cm. High tech stuff
Robin and Brian

Back in the top window of Zadig, select “Bulk-In, Interface (interface 0)” or “RTL2832UHIDIR” or “RTL2832U”. Your PC should allow you to see one of these options. Also, select “WinUSB (v6...)” in the selection box to the right of the green arrow.

The box to the left of the green arrow will either say “None” or will have the default driver that the dongle installed for watching TV.

It should all look like this (except it will say “Install Driver” instead of “Reinstall Driver” and “None” instead of “WinUSB...” if you are running it for the first time):



Now, click on the Replace Driver button. This will replace the default driver with the WinUSB one that we need to install for SDR#.

Now you are ready to run SDR#. Double click on **SDRSharp.exe** to get it going (if you get any warning messages from your PC saying it is protecting you then you should ignore these and select “more info/ run anyway”)

In the “Source” drop down box, select RTL-SDR (USB) to tell it to use your dongle.

Most of the controls are self-explanatory however there are two important hidden ones. The RF gain control is in the Setup dialog. This is the little cog icon to the right of the play icon. Click on this and move the slider across until you get a reasonable signal level on your screen. This will need adjusted for various applications you might want to run later.

The other slightly hidden control is the audio card output. On the Right hand side there are some settings menus in black boxes, one of which is labelled “Audio” If you click on the little triangle to the left of this, it will open up a panel and you can now select your PC audio output! (note, that this can only be changed when the SDR# is NOT receiving).

Now click on the play button (right facing triangle) top left. This will start SDR# receiving and you should hear the hiss of noise. (click on the square to stop receiving).

Receiving something

Put the mouse over the frequency numbers and use the wheel to alter it. Set it to 100. 100.000 (100.1 MHz is a broadcast classical music station). Select WFM in the “Radio” setup and adjust the sliders on the RHS to get something that looks like the result shown overleaf:

Finally, have a play with the “Audio Noise Reduction” settings to try to get nice clear reception and enjoy.

Obviously adjusting the frequency will let you tune into other FM channels, so you can listen in on the TDARS repeater for instance. If you have good reception you can even go up to stereo decoding (in the “Radio” settings) and so on. Now is a good time to play a bit. (<<<<<< contin)

Thanks for Newsletter input this time:

Mike G3JKX, Mike G6DFD, Heather M0HMO, Graham G7LMF John M0JZH, John A

Held over: items from G6DFD, M0PNN, G0CER (wow!)

Next edition mid September: Keep it coming-don't be shy!



I. M. D : GB8MD : April 21-23 2017

[illegible]

The new Gin Pole bracket for the 70cm mast being machined in preparation for TIG welding.

When complete this will replace the current bracket that is used to join the mast and gin pole whilst being raised and lowered. To rig and de-rig the current arrangement requires the tightening and untightening of 4 U-bots (8 nuts) each time. 4 of the 8 nuts being in very close proximity to the ground.

The new current arrangement will ensure the Gin pole and mast are truly in-line requiring nothing more than the insertion and removal of two pins to rig and de-rig.

More pictures to follow once the welding is complete courtesy John G7ACD.
73. Brian G6UDX



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Some of the Hamsters being  
led by John & Heather  
(photo: John A)



G4VZO explains DMR data mode. (photo: John A.)

John G0GTN and his one  
valve re-gen receiver  
(photo: Bob R.)





## CONTESTS—Like them or loath them by Graham G7LMF

You'll either like contests or you'll loath them, they are the Marmite of the amateur radio world.

They can be a frustration when the bands are “dead” all week and then, come the weekend....bang...**The Big Guns** come out to play and you can't get a word in edgeways.

I look at contests as a means to an end rather than the actual contesting itself, although I have had a dabble. The reason I take part in contests is to bag a few new countries that may not be out there on an average week day.

Contest contacts are generally very brief with a typical exchange of callsign, signal report and serial number, but on recent contests I have managed to make contact with Andorra, Cape Verde and Albania.

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## Decibels (dB) and why the formula for Power gain changes for Voltage & Current gain. by Mike G3JKX

Firstly, a deciBel is a unit which expresses gains and losses and is a dimensionless term because a dB is a ratio. Bels started life in the field of acoustics: i.e sound! Tests proved that the human ear has a linear response to the logarithm of the ratio of a change in sound intensity.(J)

Note. **Intensity**, NOT volume, which is subjective. Intensity is the rate of flow of energy, in other words Power (P)

Suppose  $J$  becomes larger to become  $J_0$ , then the increase in the ear is  $\log_{10} J_0/J$  Bels .

The Bel which expresses this increase, is named after Alexander Graham Bell, (the telephone inventor) being an intensity ratio of 10:1.

The Bel proved to be too large for convenience so the Decibel came into being, with 1dB being the smallest discernible increase of sound that the human ear can discern.

We can now write a formula. (Number of) dB =  $10 \log_{10} J_o/J_i$ , or for amplifiers we would write (N) dB =  $10 \log_{10} P_{out}/P_{in}$  **(1)**

Interestingly, it can be shown that if  $1\text{dB} = 10\log_{10} P_{\text{out}}/P_{\text{in}}$ , its antilog (0.1) produces  $P_{\text{in}} \times 1.259$  meaning that an increase of 1dB is 25.9% more than the original power. The ear can just discern this.

How does this relate to electronics? Using dBs means that gain of amplifiers expressed in dB, can just be added and losses in tuned circuits /attenuators/cables etc subtracted. This is because the dB figures correspond to the logarithms of the figures previously multiplied and divided.

An example. Suppose we have two amplifiers coupled together, with a gain of  $\times 1000$  each.

Then  $1000 \times 1000 = 1,000,000$ . Also suppose a (very unlikely) loss in the coupling between the two amplifiers of 10,000. The overall gain is now  $1,000,000/10,000 = \times 100$ .

Expressed in dBs the two amplifiers' overall gain is  $10\log_{10}1000000 = 10 \times 6 = +60\text{dB}$ . (+, as it's gain)

The coupling loss in dB is  $10\log_{10} 10000 = 10 \times 4 = -40\text{dB}$ . (minus, as it is a loss)

With power gain as +60dB, minus the 40dB coupling loss, gives +20dB as the overall gain.

You will recall that previously we had an overall gain figure of X100 which is +20dB, so results agree.

In electronics the Power gain formula (N)  $\text{dB} = 10 \log_{10} P_{\text{out}}/P_{\text{in}}$  (1) only applies if the input and output impedance (Z) are of equal value.

If not, then the formula has to be suitably amended, meaning we need a formula which has R or Z in it.

You will remember that power  $P = I^2 R$  or  $I^2 Z$ . (also  $V^2/R$  or  $Z$ )

For current the **dB gain** =  $10 \log_{10} (I_o/p^2 \times Z_o/p) / (I_i/p^2 \times Z_i/p)$  (2)

For voltage the dB gain =  $10 \log_{10}(V_o/p^2 / Z_o/p) / (V_i/p^2 / Z_i/p)$  (3)

We can mathematically simplify things, by getting rid of the 'squares' using logarithms, so.....

Formula (2) becomes  $20 \log_{10} I_o/p / I_i/p + 10 \log_{10} Z_o/p/Z_i/p$

Formula (3) becomes  $20 \log_{10} V_o/p / V_i/p + 10 \log_{10} Z_o/p / Z_i/p$

You should now see that if  $Z_o/p$  &  $Z_i/p$  are equal in formulas (2) and (3) the Zs cancel out because  $Z/Z = 1$  and the  $\log_{10}$  of 1 is zero!

